The Sixty-fourth of a Series of Articles by an Expert for the Automobile Owner.

By WALTER SHIELDS.

Though overheating of the engine is by no means a condition confined to summer operation of the automobile, it is one which gives its greatest trouble during the warm weather, and also is more prevalent then. Overheating is just at bad for the engine as it is inconvenient for the driver to operate his car at such a time. Few of them realize that excessive overheating of the engine taking place repeatedly may reduce the life of the engine to a considerable extent. Some present makes of care are quite well known for their heating proclivities, especially during the summer menths, and owners of such vehicles are sell aware that measures must be taken to reduce the heating periods.

Overheating has many causes. The new owner roadily understands that if he runs his engine on a retarded spark for any length of time the engine will everheat; that is, the water will boil and steam will issue from the overfeex pipe and from around the filler cap on the radiator. The action with retarded spark is quite well appreciated, but the average owner does not understand the fundamental reason for this. On a retarded spark the spark occurs as the piston is descending, and of course when it is de
Take do or so cents per cylinder, using party overheating has other causes. But overheating has other causes. But overheating has other causes. Put overheating has other causes. Take carburation timing play a heavy part, so does carburation aims as observation, a poce mixture burning shear of the car outside of the engine. Take carburation aming play a heavy part, so does carburation aming play a heavy part, so does carburation and so do ther party of the car outside of the engine. Take carburation and so do other party of the car outside of the engine. Take carburation and so do other party of the car outside of the engine. Take carburation and so do other party of the car outside of the engine. Take carburation and so do other party of the car outside of the engine. Take carburation and soce carburation and soce carburation and soce ca

segmer does not understand the fundamental reason for this. On a retarded spark occurs as the piston is descending, and of course when it is descending, and of course when it is descending there is more wall exposed than through it were dit the top. Thus on a retarded spark the spark occurs when there is a large wall area exposed to the fame of explosion, hence more heat is sent into the cooling water and the hotter if gets. On an advanced spark there is not so much wall area exposed to the fame and the heat loss through the facet water is not so much wall area exposed to the fame and the heat loss through the facet water is not so much wall area exposed to the fame and the heat loss through the facet water is not so much. It was the spark even the filler is the cause for the knocking, so that if will be possible to use a little more advance.

It is quite natural that anything in the water system tending to impede water circulation will soon cause the water to do is to look into the filler nack while the engine is running and notice if there is visible sign of circulation. If the water seems to be moving then circulation is all right and the cause is elsewhere. If the circulation is not all right and the cause is elsewhere. If the circulation is not all right and the cause is elsewhere. If the circulation is not all right and the cause is elsewhere. If the circulation is not all right, then an attempt must be made to find out what the trouble is. In

rot all right, then an attempt must be made to find out what the trouble is. In thermo-syphon system the only thing that can possibly prevent circulation is an obstruction in the radiator or the engine side of the water system. The simple draining of the radiator will tell one, by watching the rate of flow from the drain, whether there is an obstruction in it. If there is no drain in the engine part of the system, then that cannot be tested in the same way. If the radiator is obstructed it may be the radiator is obstructed it may be caused by an acdumulation of mud in the lower tank or in the small openings the lower tank or in the small openings in the core. A radiator repair station should have the job. Often air under pressure forced through clears the passages but the trouble may occur immediately after unless the system in thoroughly cleaned. This brings up the importance of having the whole cooling system gone over at the very beginning of the touring season, so there will not be trouble later. Incidentally it might be mentioned that the average owner. he mentioned that the average owner ares very little about the kind of water

engine with impeded circulation will not rally a little hotter. A pump system unlike the thermosyphon cannot cool efficiently unless the pump is forcing the water around. The system is not designed to give natural cooling, hence if anything goes wrong with the pump there is bound to be circulation and overheating.

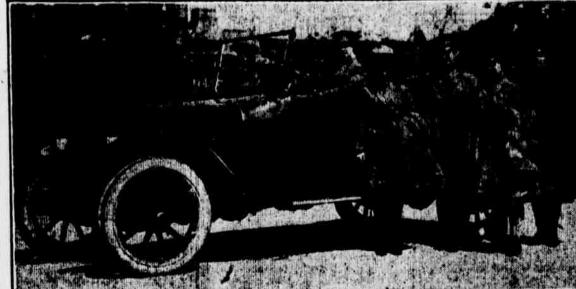
In some engines themostat is used

to uses and whether or not it is clean.

the radiator tanks and a clogging up f the system results. Operation of the

In some engines themostat is used in the water line and if for any reason the thermostat should fail to open as the water gets heated the water passage will naturally be restricted and everleating will follow. The townstat, be it remmbered, does not kelp to cool the engine once it gets hot, but helps only to bring it to its proper heat after the water is cold.

Carbon is another common cause of overheating. When there is carbon on the piston tops and cylinders in appreciable quantity overheating is bound to result. In fact a good indication that carbon is present is formed when overheating and lack of power with backfiring and knocking are in combination. Carbon causes pre-ignition and knocking, because the mixture is ignited at the wrong time. That means without



"Battalion of Death" Drive Chandlers.

Along Automobile Row they call them
"Hulett's Battalion of Death." Death to
what is not known—yet, but probably it
is death to the idea that women cannot
be of great value in delivering cars over

from the factory to New York. Hulett, notice." Then all produced small leather
who is very bashful but exceedingly cases such as lawyers use for their legal
wind to women, said rather hesitatingly:
"Oh, is that so? When do you expect
to start."

By this time word had gone through
with you, and looking at matters from the five soldier women shown in the ac-companying photograph really were go-ing to Cleveland to drive five Chandler cars the 612 miles from the factory to

a job exclaimed:
"Can you heat it? Women win, that's
all. You find them running hotel elevators, acting as conductors on the surface cars and as guards in the subway
trains. Now you find them doing a real
man's job behind the wheel of an automobile in a lange cross-country drive. a job exclaimed mubile in a long cross-country drive. Pretty soon the only job open to a man will be fighting."

J. B. Hulett, president of the Brady-Murray Motors Corporation, thought he was in "No Man's Land" when the five members of the National Woman's Army in regulation army uniforms and with the most approved military salute swept into his office the other day and declared very emphatically that they had decided to drive Chandler cars over the road

### HOW ENGLAND USES. TRUCKS AT HOME

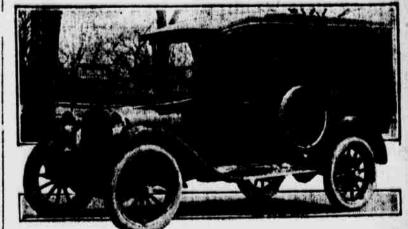
Interesting Letter From English Automobile Concern to Local Tire Company.

The following letter shows how gen erally motor trucks are being used in England for carrying goods and how efficiently pressure on the railroads is

Mourice Suitzer, Esq., Kelly-Springfield The Company, Advertising Depart ment, Beventh avenue at Fifty-sav

enth street, New York, U. B. A.: DEAR SIR: I have just received you letter of the 1st inst., and although mine of the 7th ultimo was not written for publication but to give you some idea of conditions which exist over here, yet if publication will serve any good purpose then there is not the slightest objection

New Dodge Panel Business Car.



The car is of half ton capacity with manship.

The first panel business car to be inside loading space 6 feet by 43 inches turned out by Dodge Brothers in Detroit was received by Colt-Stratton Company, their New York dealer, last week.

# row the factory in New York. Highest contine." Then all produced small inches to see the allighest elegents with the stary included and the seed of th

# -and Low Cost of Upkeep

THESE ARE the qualities you demand -the qualities you must have in a quick delivery truck.

TWERE USELESS to promise quick delivery, unless you can also promise certain delivery.

NOR CAN YOU AFFORD a quick delivery service that is not also economical in operation.

AND THESE ATTRIBUTES you find, to a greater degree than is obtainable elsewhere, in a Reo 3/4-ton "Speed Wagon."

REO ENGINEERING - which is another way of saying sound engineering-is the reason for Reo reliability.

STURDY CONSTRUCTION - at a time when flimsiness-miscalled lightness-is all too prevalent, is a further reason.

THE SAME DESIGN—the same standard of quality in materials and workmanship, that makes for dependability in Reos, also automatically guarantees low upkeep.

IN THESE TIMES when efficiency counts, you can't afford to experiment.

WHEN YOU SELECT a Reo, you eliminate all element of experimentfor Reos are "The Gold Standard of Values." So acknowledged everywhere.

# Reo Motor Car Co. of New York, Inc.

Broadway, at 54th Street

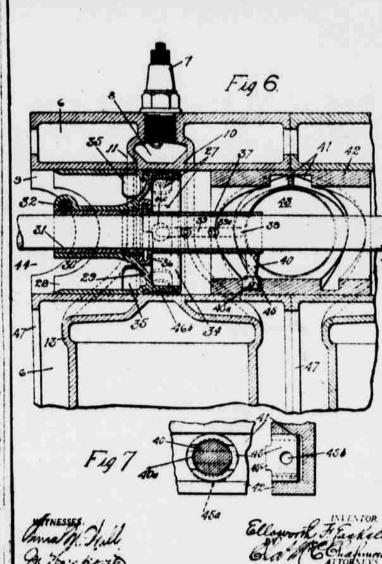
Phone Circle 1271

Newark: 1380 Bedford Av. 37-39 William St.

New Rochelle:



Features of Gaskell Airplane Motor.



then. Carbon causes pre-ignition and knocking, because the mixture is ignited at the wrong time. That means without regard for spark occurrence.

Of course an engine that is heavily (arbonized will need frequent water replenishing. With such an engine a badily carbonized one it matters little whether the spark is retarded or not, there will be knocking. The power will fall off and hill elimbing on high is difficult. In other words the carbonized condition brings about others which in turn may cause overheating. There is nothing else as common passage for the water from the road where many shops advertise the road where many shops advertise that the work will be done for something.

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NEW YORK TIRE SERVICE, Inc.

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